

REMARKS

Reconsideration and allowance of the above referenced application are respectfully requested.

The indication in paper No. 2 that all claims are allowable over the prior art of record is appreciatively noted. Claims 1-17 are retained herein. Claim 18 has been canceled in favor of a continuation application which is being filed.

The applicants apologize for failing to provide a rule 607 showing. Accordingly, the rule 607 showing is provided herein.

1) Applicants are seeking to provoke an interference with U.S. patent No. 6,107,000.

2) applicants suggest the following count
Proposed count 1. A method of fabricating a three-dimensional micro optic element on a substrate, comprising:
providing a grayscale mask having portions formed thereon which are responsive to electron beam radiation to change the optical density of a surface layer;
exposing the mask to an electron beam of selected charge density over a grid of discrete locations on the mask to provide a predetermined grayscale pattern of continuously varying optical transmissivity on the mask; and
exposing the photoresist layer to radiation transmitted through

the mask.

3) At least claim 1 of the application corresponds to the proposed count. Newly added claims 19 and 20 also correspond to the count.

4) Claim 19 corresponds exactly to the proposed count.

claim 1 corresponds to the proposed count except for the following. First, the preamble of the proposed count describes generically, an optical element on the substrate, rather than describing that the element as a lens, as is recited by claim 1. Claim 1 defines specific glasses better in the preamble. Hence, the count is broader than claim 1 in this respect. In the first paragraph of the the proposed count, the mask is referred to as having 'portions', rather than enumerating these as body portion and surface layer as in claim one of the application

5) the following explains support for claim 1. This support is provided by provisional application 60/030258 and by application No. 09/934,218 as filed.

1. *A method of fabricating a three-dimensional micro optic element on a substrate , comprising:*

the provisional application describes forming structures on a substrate see generally page 7. This is also supported in the

current patent application for example page 80 line 19 to page 82 line 2, and Fig. 12 and Fig. 13.

Providing a grayscale mask having portions formed thereon which are responsive to electron beam radiation to change the optical density of a surface layer

the provisional application describes optical density being changed on the grayscale mask, see generally page 2-3. The patent application also describes this same information beginning page 53 line 14 also see Fig. 2-5 and explains how the glass has a net optical density value which changes based on the applied electron beam exposure.

Exposing the mask to an electron beam of selected charge density over a grid of discrete locations on the mask to provide a predetermined grayscale pattern of continuously varying optical transmissivity on the mask

Page 7 and figure 7(a) curve A and curve B in particular of the provisional application describes how the mask is exposed to an electron beam and discrete locations which are specified by a selected addressing grid spacing in e-beam writing, are used to form predetermined grayscale patterns. A vector scan e-beam writer is able to deposit a selected/different electron dosage

by selecting a clock rate at each address in the addressing grid. This is described in page 11 first full paragraph of the provisional application, and is also described in page 84 lines 15-22 of this application. Each pattern has a continuously variable optical transmissivity. This is also described in figure 7(a) curve A and curve B of the provisional application and of the application and page 66 line 23 through page 67 21 of the application. Please note the optical micrograph of figure 11(A) in the provisional application is replaced by figures 10 and 11 of this application which have a larger magnification to more clearly exhibit the continuous gray levels in figure 10 and to more clearly exhibit the discrete gray levels in figure 11, also to demonstrate that the continuous gray levels and discrete gray levels can co-exist in one or more gray scale patterns within one gray scale mask. Since the clock rate can be varied continuously on the fly during e-beam writing from one address to next address, any optical density value along curve A or curve B of figure 7(a) can be assigned to any address of the addressing grid.

Exposing the photoresist layer to radiation transmitted through the mask

Photoresist is exposed through the mask see figure 10 and 12 of

the provisional application in page 7 and 9, and the corresponding description on page 7 halfway through the first full paragraph. This is also described in the application see figure 12 and 13 and page 80 line 23-25 and line 28-30.

Removing material from the photoresist layer and the substrate to provide a predetermined varying thickness of the substrate as determined by the grayscale patterns on the mask

After exposing the photoresist, the photoresist is "developed" see page 7 of the provisional application and figure 10 showing that the photoresist material has been removed. The same figure i.e. figure 12 of the application is present in the application, also showing that the material is removed.

6. Claim 1 was present in the case less than one year after the issue date of the patent.


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Respectfully submitted,

Date: _____

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